



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,252	06/06/2006	Kazuo Kurihara	09792909-6488	4261

26263 7590 03/30/2009  
SONNENSCHN NATH & ROSENTHAL LLP  
P.O. BOX 061080  
WACKER DRIVE STATION, SEARS TOWER  
CHICAGO, IL 60606-1080

EXAMINER
----------

KWOK, HELEN C

ART UNIT	PAPER NUMBER
----------	--------------

2856

MAIL DATE	DELIVERY MODE
-----------	---------------

03/30/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/596,252	KURIHARA, KAZUO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Helen C. Kwok	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>June 6, 2006</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

2. The drawings are objected. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figure 13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 12, the phrase "the phase difference" lacks antecedent basis.

In claim 3, line 13, the phrase "the phase difference" lacks antecedent basis.

In claim 5, line 8, the phrase "the phase difference" lacks antecedent basis. In line 12, the phrase "the set phase difference" lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2856

6. Claims 1, 3 and 5 rejected under 35 U.S.C. 102(a) as being anticipated by Figure 13 of the Instant application which is "Prior Art".

With regards to claims 1, 3 and 5, Figure 13 illustrates the same elements and arrangements for each of the elements of the present invention, as illustrated in Figure 1. Namely, a differential amplifier circuit 4 for outputting a signal corresponding to a difference between output signals of two detection pieces 33a,33b of a vibration gyro 32; a synchronous detection circuit 5 for performing synchronous detection on the output signal of the differential amplifier circuit; a phase shift circuit 13 for supplying to the synchronous detection circuit a signal, as a timing signal for the synchronous detection, which is phase-shifted with respect to a drive signal supplied to the vibration gyro wherein the phase difference between the drive signal and the timing signal is set on the basis of a phase difference characteristic of a detection sensitivity for the output signal of the differential amplifier circuit, the phase difference characteristic being obtained in advance under a condition where a rotational angular velocity is applied to the vibration gyro in a driving state. (See, as observed in Figure 13; page 2, line 16 to page 6, line 21).

7. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,608,425 (Ebara et al.).

With regards to claims 1, 3 and 5, Ebara et al. discloses a vibrating gyroscope comprising, as illustrated in Figures 1-3, a differential amplifier circuit 7 for outputting a signal corresponding to a difference between output signals of two detection pieces

Art Unit: 2856

2L,2R of a vibration gyro 2; a synchronous detection circuit 8 for performing synchronous detection on the output signal of the differential amplifier circuit; a phase shift circuit 17 for supplying to the synchronous detection circuit a signal, as a timing signal for the synchronous detection, which is phase-shifted with respect to a drive signal supplied to the vibration gyro wherein the phase difference between the drive signal and the timing signal is set on the basis of a phase difference characteristic of a detection sensitivity for the output signal of the differential amplifier circuit, the phase difference characteristic being obtained in advance under a condition where a rotational angular velocity is applied to the vibration gyro in a driving state. (See, column 3, line 6 to column 5, line 53).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Figure 13 of the Instant application or U.S. Patent 6,608,425 (Ehara et al.) in view of U.S. Patent 5,473,288 (Kumada).

With regards to claims 2, 4 and 6-7, the only difference between the prior art, Figure 13 of the Instant application and Ehara et al., and the claimed invention is the

Art Unit: 2856

phase shift circuit includes an integrated circuit having a resistor and a capacitor.

Kumada discloses an oscillation circuit comprising, as illustrated in Figures 1-3, a vibrator 1 including two detection pieces 3a,3b and a phase shift circuit 70 having two RC networks comprising resistors 72,74 and capacitors 76,78. (See, column 4, lines 33-42; column 5, lines 45-57). It would have been obvious to a person of ordinary skills in the art to have readily recognize the advantages and desirability of employing the phase circuit having the integrated circuit with resistors and capacitors as suggested by Kumada to the apparatus of either Figure 13 of the Instant application or Ehara et al. to adjust and control the signal used to drive the vibrator such that the phase is kept continuously and conditioned to a certain shape. (See, column 6, lines 27-57).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The references cited are related to circuitries of vibratory gyroscope.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen C. Kwok whose telephone number is (571) 272-2197. The examiner can normally be reached on 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone

Art Unit: 2856

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helen C. Kwok/  
Primary Examiner, Art Unit 2856  
March 23, 2009